Full-Field Optical Coherence Scanning Interferometry
Abstract

Scanning interferometry is the technique for performing surface height measurement. By exploiting the low coherence of white light source, interference pattern appears only when the path length difference is within the coherent length. Therefore, it enables precise microscopic measurement. Together with a Xenon lamp, a Michelson interferometer is built up and used to measure a specimen with smoothly varying front surface.
Modeling Task

How to calculate the interference pattern and even to derive the height profile of the specimen under test?

Xenon lamp
- black body spectrum
- 6200K temperature

Achromat
Edmund optics
No. 49-664

Power spectrum

Fixed mirror

Detector

Beam splitter

Specimen (movable)

Height contour

0

6 µm

25 µm
Simulated Interference Fringes

Contour lines of interference fringes correspond to the height contour of the specimen under measurement.

Xenon lamp

detector

fixed mirror

specimen (movable)
Peek into VirtualLab Fusion

customizable surface definition via import

- 6 µm
- 25 µm

- 0
- 6 µm

- 25 µm
Workflow in VirtualLab Fusion

• Set up input field
  - Basic Source Models [Tutorial Video]

• Customize surface profile using imported data

• Define position and orientation of components
  - LPD II: Position and Orientation [Tutorial Video]

• Set channels properly for non-sequential tracing
  - Channel Setting for Non-Sequential Tracing [Use Case]

• Use Parameter Run to check influence/changes
  - Usage of the Parameter Run Document [Use Case]
VirtualLab Fusion Technologies
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<tr>
<td>version</td>
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